What is claimed is:

1. A magnetic bearing device for magnetically levitating a rotary body by contactlessly supporting the body with magnetic attraction of pairs of electromagnets with respect to an axial direction and two radial directions orthogonal to each other and to the axial direction, the rotary body having movable ranges in the three supporting directions determined by mechanical restraining means, the magnetic bearing device being characterized in that the device comprises a pair of electromagnets so arranged as to hold the rotary body at opposite sides thereof in the direction of each of control axes in the respective three supporting directions, means for detecting the position of the rotary body in the direction of the control axis and electromagnet control means having at least an integral operation unit for controlling the electromagnets based on the result of detection of the position by the position detecting means, the electromagnet control means comprising a target levitated position setting means for setting as a target levitated position of the rotary body in the direction of the control axis the position of the rotary body corresponding to the median of an integral output which is the output of the

integral operation unit when the rotary body is magnetically levitated in the vicinity of one of limit positions in the direction of the control axis determined by the mechanical restraining means and an integral output of the integral operation unit when the rotary body is magnetically levitated in the vicinity of the other limit position.

2. A magnetic bearing device according to claim 1 which is characterized in that the target position setting means is adapted to position the rotary body at said one limit position, thereafter magnetically levitate the rotary body in the vicinity thereof, obtain the integral output at this time to store the output as a first limit position integral output in a memory, gradually shift the magnetically levitated position of the rotary body toward said other limit position, determine the position of the rotary body every time the rotary body is so shifted by a small distance at a time and the corresponding integral output for storage as an intermediate position and an intermediate position integral output in the memory, move the rotary body to said other limit position, thereafter magnetically levitate the rotary body in the vicinity thereof, obtain the integral output at this time for use as a second

limit position integral output, determine the median of the first limit position integral output and the second limit position integral output, and select the output most proximate to the median from among the intermediate position integral outputs stored in the memory to determine the intermediate position corresponding to the selected intermediate position integral output as the target levitated position.